

UNIVERSAL SERVICE FILED

CC 96-45

ORIGINAL

**BEFORE THE FEDERAL-STATE JOINT BOARD ON UNIVERSAL
SERVICE****JUNE 5, 1996****STATEMENT OF GLENN BROWN
EXECUTIVE DIRECTOR - PUBLIC POLICY, U S WEST INC.**

My name is Glenn Brown and I am Executive Director - Public Policy for U S WEST Inc.. U S WEST is honored to be here today to present our plan for assuring the continued provision of universal service in rural, insular and high cost areas. We believe that we are uniquely qualified to comment on high cost support. We are both an incumbent provider of telephone service and a new market entrant outside our region. We serve many dense urban centers and also much sparse rural territory. Our plan is not predicated on explicit funding for the totality of our embedded cost, nor is it based on some hyper-efficient yet totally impractical "fantasy network". We believe that our plan offers a balanced approach to implementing the type of "specific, predictable and sufficient" high cost support plan which Congress has asked this Joint Board to develop.

The key to successfully implementing this mission will be to efficiently target support dollars to where they are needed. The amount of available support funds will necessarily be limited, and regulators will need to balance the needs of high cost residential customers with the needs of schools and libraries. The "shotgun" approaches of the past will not work, and support which is provided to areas where it is not required can actually distort the evolution of local competition, as I will illustrate shortly.

I was at the Joint Board meeting on March 12 when Chairman Hundt asked for specific quantification for high cost support. We believe our plan provides this. In partnership with others, we developed the Benchmark Cost Model (BCM)

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which helps to target and quantify high cost support. I was also at the NARUC Summer Meetings in 1995 when the Joint Board staff requested that parties with models place them on the record for public inspection and comment. We believe that the BCM has set the standard for open disclosure of proxy models. The Joint Sponsors presented four Workshops to over 200 representatives of industry and government, during which copies of the model software were provided for inspection and use. As a result of this process we have gained valuable insights which will be reflected in the next release of the model. We have reviewed proposed model enhancements with the Joint Board staff, and plan to place BCM II on the record by July 1, 1996. Indeed, we would suggest that the Joint Board require that any model which is proposed as the basis for the distribution of billions of dollars of public support be subject to full disclosure and public comment.

The BCM designs a network, using state-of-the-art technology and current costs, sufficient to provide high quality telephone service. This allows the approximation of the cost of providing basic telephone service to each of the 220,000 Census Block Groups (CBGs) nationwide. Chart I is a map of La Junta, Colorado showing the streets and roads of the town and outlying countryside as well as the CBG boundaries. Chart II is a map showing the cost ranges for the CBGs in the La Junta wire center. The BCM allows for a nationwide roll-up of the cost of service, and the determination of the necessary funding at various "Affordability Benchmark" levels. Chart III provides a summary of BCM results using the two expense to investment multipliers published in the BCM, as well as a proxy for embedded cost.

In commenting on the BCM, I would like to draw the attention of the Joint Board to two areas:

1. The need to target support to the CBG and not the wire center as some, including NCTA have suggested, and
2. The pitfalls of basing support determination on hypothetical "fantasy networks".

Earlier, I mentioned that targeting high cost support to areas where it is not needed will distort the evolution of local competition. Providing support based upon wire center average costs clearly illustrates this problem. As Chart II shows, service in downtown La Junta costs less than \$20/month, while service gets more costly the farther out you go. Chart IV provides a simple, yet typical, numerical example of wire center vs. CBG targeting. This community has 800 lines in town costing an average of \$20/month, and 200 lines on outlying farms averaging \$200/month. The average cost for the wire center is thus \$56/month. If the affordability benchmark were set at \$30/month and support was determined at the wire center level, a provider would receive \$26 in "support" for each customer in the wire center which they served, even if that customer lived in town and cost \$20 or less. Under the CBG targeting approach no support would be provided for serving the customers in town, where competition is likely to develop first, and support would only be given when a provider served a customer who was actually high cost. Indeed, such an approach would likely increase the chances that remote rural customers would be provided with competitive choices.

NCTA and others have suggested that targeting support to the wire center results in a lower fund size. While at first blush the arithmetic works out this way, the reality is that it could require significantly more funds. The reason for

this is that every dollar that a provider receives for serving a customer whose true cost is less than the funding benchmark, was intended to support some other customer whose cost is above the wire center average. To the extent that new entrants serve primarily customers in town and receive support funds based on the wire center average, additional funds will be required to support the very high cost customers, and providers serving customers in town will receive a windfall.

Much of the critique of the BCM has come from parties who propose to change the consensus factors and assumptions in the BCM in order to lower the overall "cost" of the network and, by extension, the size of a high cost fund. In evaluating such proposed changes, however, the Joint Board must be very careful that the resultant network is sufficient to provide quality telephone service. Among other things, both the ETI and Hatfield studies gain a considerable amount of their cost reduction by arbitrarily increasing outside plant "fill factors". Indeed, ETI proposes outside plant fill factors of over 90%. While this does reduce "cost", it absolutely would not allow the provision of telephone service at quality levels that state regulators demand and expect. Real telephone companies are expected to provide service on several days notice, to any customer, anywhere in their service territory. This requires the provision of sufficient spare capacity to meet this demand wherever and whenever it materializes. While painful to admit (and thankfully now almost solved), U S WEST recently found itself criticized for the number held orders which we were forced to take in the wake of unprecedented demand growth in our region. With fill factors far below those in the idealized networks, we came short of meeting the service quality standards which our customers and regulators expected. The "fantasy networks" which ETI and Hatfield propose

would do a third-world country proud. Indeed, if such networks could work, we would suggest that rather than talk about them -- they and their clients should build them.

While commenting on maintaining universal service, I must also must express serious concern about the impact which several proposals in the ongoing Interconnection proceeding could have on universal service funding. As you know, virtually all of the support for universal service in companies such as U S WEST comes from implicit sources within our rate structure. Interstate (and intrastate) access charges are a major source of this support. Interexchange Carriers (IXCs) have proposed that the 1996 Act allows them to replace interstate access charges with unbundled network elements priced at "economic cost". If their claims that current access rates are "seven times economic cost" are true, then over \$18 billion of implicit interstate support may be at risk with their proposal. This equates to almost \$10 per residential line per month.

Congress has directed that implicit support be replaced by explicit support, and that is what this Joint Board is about. However there is the potential for a serious mismatch of timing. Interconnection is to be decided in August 1996, while a final decision on universal service funding is not scheduled until May of 1997. Even then, the implementation of multi-billion dollar fund collection and distribution mechanisms could well take a year or more. Access reform has not even been scheduled yet. As they say where I come from, by the time we fix the barn door, the horse could be long gone.

In order to preserve the important goals of universal service, it is highly likely that some interim universal service safeguard measures will be necessary. While we will vigorously oppose IXC initiatives to avoid access charges, the magnitude of the downside risk together with the uncertainties of the new competitive marketplace require that actions be taken to avoid a "crash landing" of present implicit supports for universal service. An appropriate transition mechanism which provides a "soft landing" of universal service support may well be necessary -- at least until the completion of access charge reform, and the implementation of the new explicit support mechanisms.





As I mentioned at the outset, we believe that our plan for explicit high cost funding represents an appropriate balance, favoring neither the incumbent nor the new market entrant. It achieves that balance, in part, by basing explicit fund payments on the forward looking costs of constructing a real network. LEC investments which have been made in the past, using the most efficient technology of that time to meet carrier of last resort obligations under regulation represent legitimate costs to which LECs are entitled to full recovery. U S WEST's plan assumes that these costs will be recovered through a combination of rate rebalancing and targeted explicit funding mechanisms. Indeed, to the extent that incumbent LECs are not given sufficient ability to rebalance rates, the magnitude of the necessary explicit high cost fund will increase.

Thank you for your time and attention.

SAMPLE OF RURAL CENSUS BLOCK GROUPS

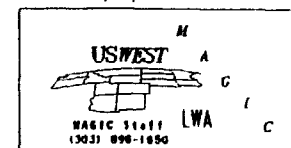
LA JUNTA COLORADO

LEGEND

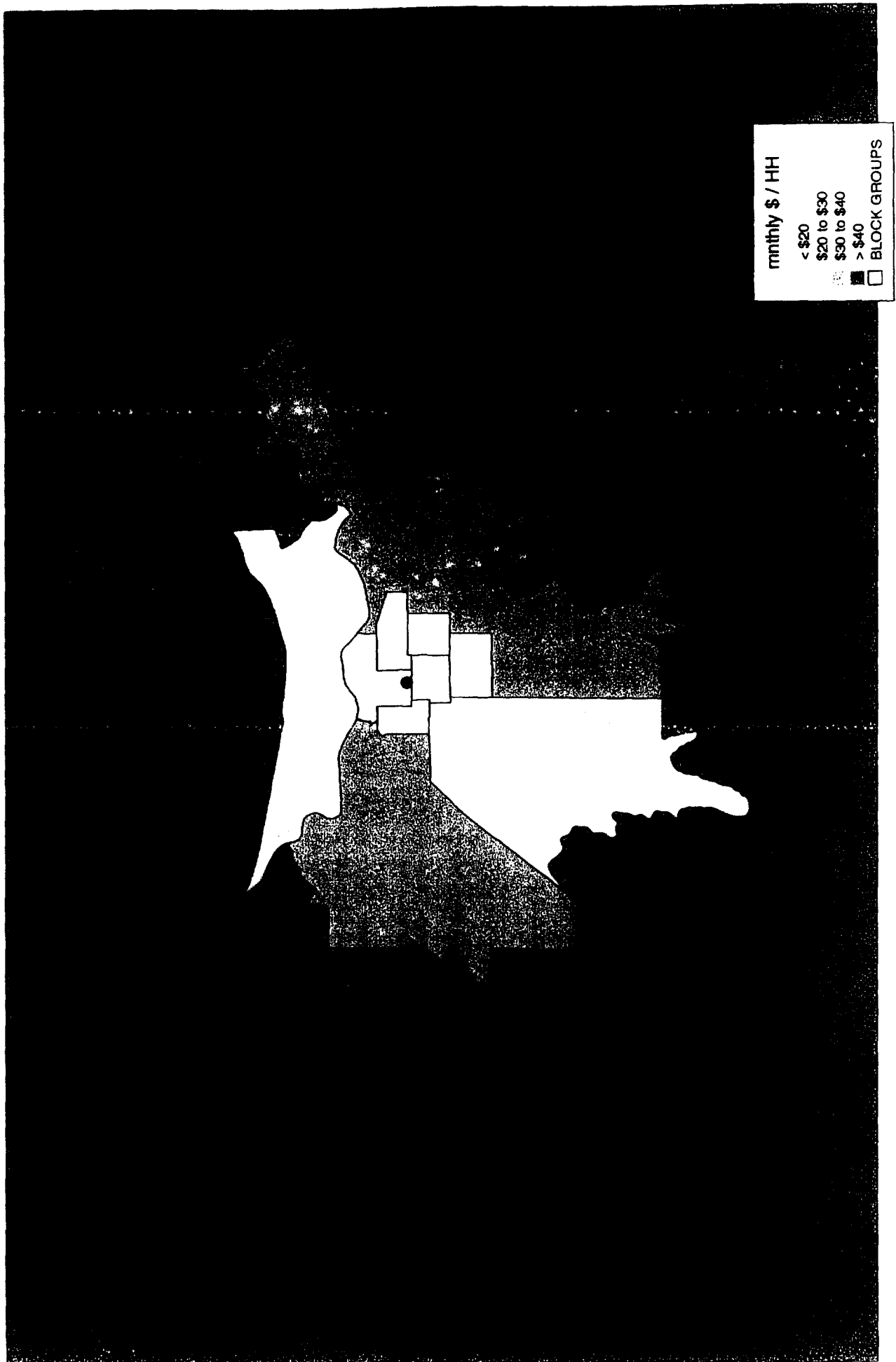
-  CENSUS BLOCK GROUP
-  WIRE CENTER
-  STREETS
-  CENTRAL OFFICE



09/28/94



LA JUNTA COLORADO



UNIVERSAL SERVICE FUND REQUIREMENTS

FUNDING BENCHMARK	BCM MCI/HATFIELD ¹	BCM ARMIS ²	EMBEDDED COST ³
\$20/month	\$4.0B	\$8.1B	\$11.6B
\$30/month	2.2	4.9	7.0
\$40/month	1.4	3.2	4.6
\$50/month	1.0	2.2	3.2
\$60/month	0.7	1.7	2.4
\$70/month	0.5	1.3	1.9
\$80/month	0.4	1.0	1.4

¹ MCI/Hatfield expense/investment factor is 22.97%. NOTE: This result is not the same as the Hatfield study filed by MCI in an ex-parte dated March 29, 1996.

² The ARMIS expense/investment factor is 31.68%. NOTE: This factor is derived using embedded investment but applied to investment computed on a forward-looking basis.

³ Embedded Cost is estimated by assuming that forward looking costs are 69.65% of embedded cost.

CBG vs. WIRE CENTER FUNDING

ASSUMPTIONS:

- RURAL COMMUNITY WITH 1000 LINES
- 800 LINES IN TOWN AT \$20/mo. AVERAGE COST
- 200 LINES ON OUTLYING FARMS AT \$200/mo.
- FUNDING BENCHMARK AT \$30/mo.

WIRE CENTER TARGETING

AVERAGE COST:	800 lines	x	\$20/line	=	\$16,000
	200 lines	x	\$200/line	=	<u>\$40,000</u>
	Total Cost			=	\$56,000
	Average Cost			=	\$56/line
FUNDING:	\$56/line - \$30/line benchmark			=	\$26/line

CENSUS BLOCK GROUP (CBG) TARGETING

TOWN CUSTOMERS:

Average Cost = \$20/month
No benchmark funding

FARM CUSTOMERS:

Average Cost = \$200/month
Funding = \$200 cost - \$30 benchmark = \$170/line

Thus, wire center targeting could result in new entrants receiving \$6 more than cost for providing service in towns. Also, there would be no incentive for new entrants to provide service to the \$200 outlying farm customers because they would only receive \$26 in high cost funds resulting in a \$144 support shortfall.



THE MAGNITUDE OF THE UNIVERSAL SERVICE FUNDING REQUIREMENT

Presentation by Lee L. Selwyn

to the Federal-State Joint Board on Universal Service

CC Docket 96-45

“Cost of Support for Rural, Insular, and High Cost Areas and for Low-income Consumers”

June 5, 1996



ECONOMICS AND TECHNOLOGY, INC.

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BCM Switch Costs Are Too High

What the BCM does —

- **The BCM models switch costs by assuming a per-line cost of \$238.87 and common processor costs of \$647,526.**

Flaws in switch costs and algorithms —

- **The BCM uses mid-'80s data — this is akin to relying on a copy of a 1985 PC magazine to research the cost of a PC today.**
- **The BCM deploys a DMS 100 switch in every wire center. It should deploy remote switching units.**

BCM Switch Costs Are Too High

What do the Joint Sponsors plan to do —

- **Design a matrix to allow the design of host and remote switches.**
- **Identify fixed and per-line costs for various switch sizes.**
- **It is unclear what the source of the switch costs will be.**

How did ETI correct the flaw —

Public data is hard to come by; ILECs claim proprietary status.

ETI used 1994 Pacific Bell data because it is public and recent.

The BCM's Fiber/Copper Cross-over Point is Uneconomical

- **The fiber/copper “crossover point” adopted in the BCM applies fiber costs in many cases where copper is less expensive and is the proper economic choice.**
- **Evidence developed in the California PUC’s Universal Service proceeding confirmed that copper should have been used for longer distances than assumed in the BCM.**
- **But rather than respond to a legitimate analytic issue, US West is attempting to divert attention with spurious and frivolous allegations about an alleged “intellectual property” infringement by ETI.**

The BCM's Fiber/Copper Cross-over Point is Uneconomical

US West's noise — an effort to drown out the substance

- **In its reply comments, US West criticizes the Hatfield model for being a “black box” while simultaneously chastising ETI for trying to pry open a “black box” in the BCM.**
- **The BCM is purportedly public and is, in any event, evidence offered by a party in litigation that is “fair game” for examination and analysis by other parties.**
- **Parties should be required to obtain a “license” from US West or any other party in order to examine evidence offered by US West in an adversarial proceeding.**
- **The Commission and the Joint Board should not condone US West's tactic of raising bogus “licensing” claims in a transparent attempt to define the limits of parties' comments on US West evidence.**
- **ETI conducted sensitivity analyses of the fiber-copper crossover point and the related digital loop carrier equipment costs.**
 - **ETI identified flaws in this regard. ETI did not correct flaws.**
 - **ETI did not modify the model nor did it distribute a modified model.**
 - **Only one of the four Joint Sponsors is harassing ETI.**

The BCM's Fiber/Copper Cross-over Point is Uneconomical

An analysis of the issue

- **The model does not now make an economic choice between fiber and copper**
- **The model's assumptions about the crossover point and about digital loop carrier equipment are contradictory**
 - **either the equipment costs are too high, and/or**
 - **the crossover point is incorrect**
- **Raising the crossover point from the default value of 12,000 feet to an illustrative level of 27,000 feet lowers the average cost of a residential exchange access line by approximately \$2.00**
- **The decision to deploy fiber rather than copper in outside plant should be driven by:**
 - **capacity (fiber might make sense at shorter distances where more capacity is involved)**
 - **plausible digital loop carrier equipment costs**

The BCM Mis-assigns Spare Capacity to Universal Service

The BCM's default values for outside plant utilization factors are too low when considered in the context of primary residential exchange access line demand.

- ETI increased the *objective* fill factor to 95% to eliminate spare capacity that is deployed to support services *other than* primary residential access lines.
- Because of breakage, *actual* fill rarely exceeds 90% when a 95% objective fill is applied.
- Universal service funding computations should be based upon the provision of *single line* basic local exchange service to households.

Duplicative USF Support Should Be Eliminated

Before any recovery of universal service costs occurs through a new funding mechanism —

- **all existing sources of support (both implicit and explicit) should be identified**
- **any duplication of support should be eliminated**
- **such an approach should occur at both the federal and state jurisdictions**

Table 1

**The BCM Overstates the USF Requirement
Washington State**

	BCM	ETI Partially Corrected BCM	Difference
Average Monthly Cost	\$16.94	\$12.58	(26%)
Annual USF Requirement	\$50,692,630	\$17,429,545	(66%)

Notes: USF requirement figures reflect a price threshold of \$30 per month and a cost factor of 22.97%. See Appendix 8B of ETI Report.

Table 2

**Comparative Summary Results of the BCM and the ETI Partially
Corrected BCM
Washington State**

	BCM	ETI Partial Corrections	Difference
Annual Benchmark Cost	\$380,427,268	\$282,552,902	(26%)
Average Monthly Cost	\$16.94	\$12.58	(26%)
USF Requirement (\$20)	\$77,846,835	\$29,230,056	(62%)
USF Requirement (\$30)	\$50,692,630	\$17,429,545	(66%)
USF Requirement (\$40)	\$37,662,589	\$11,430,572	(70%)

Note: See Appendix 8B of ETI Report.

Table 3

**Comparative Summary Results of the BCM
and the ETI Partially Corrected BCM
National Total (excluding Alaska)**

	BCM	ETI Partial Corrections
Annual Benchmark Cost	\$18,402,608,162	\$4,784,678,122
Average Monthly Cost	\$16.71	\$12.37
USF Requirement (\$20)	\$3,977,572,193	\$1,511,477,433
USF Requirement (\$30)	\$2,203,441,910	\$749,170,249
USF Requirement (\$40)	\$1,372,205,121	\$411,661,536

Note: Adjustment factors based upon a comparison of BCM and ETI results for Washington are used to estimate national ETI results.

Table 4

**Comparative Summary Results of the BCM and the ETI Partially
Corrected BCM (Wire Center Aggregation)
Washington State**

	BCM	ETI Partial Corrections	Difference
Annual Benchmark Cost	\$380,427,268	\$282,552,902	(26%)
Average Monthly Cost	\$16.94	\$12.58	(26%)
USF Requirement (\$20)	\$77,846,835	\$19,966,076	(74%)
USF Requirement (\$30)	\$50,692,630	\$10,755,951	(79%)
USF Requirement (\$40)	\$37,662,589	\$6,402,815	(83%)

**Note: USF requirement is assessed at the wire center
rather than the CBG level.**

The Joint Sponsors should not be permitted to limit parties' examination and testing of critical attributes in the BCM, or to intimidate those parties who may seek to address aspects of the BCM that some of the Sponsors have tried to place "off limits"

The Joint Sponsors have represented the BCM as a *public* model and have made a point of making the model widely available. In their Joint Submission of December 1, 1995, they stated:

In order that parties commenting in this proceeding [Docket CC 80-286] may have a common source of data which utilizes both the concept of the Census Block Groups (CBGs) and proxy costing, MCI, NYNEX, Sprint, and US West (Joint Sponsors) have worked together to develop a Benchmark Costing Model (BCM). ... The BCM is intended to provide the Commission, Joint Board, and other interested parties with information that can be used to evaluate the multiple proposals for the use of proxy methods set forth in the NPRM, including assessing the application of the proxy methodology to large companies only. ... *By making the model publicly available, the Joint Sponsors hope that the Commission, Joint Board and other interested parties will be able to obtain facts, data, and policy recommendations which will assist in the timely resolution of the important issues relating to universal service.*¹

Consistent with that spirit of allowing industry members and policy makers to "kick the tires" of the BCM, ETI undertook to perform a series of sensitivity analyses of the proxy model and its key parameters, with the express purpose of contributing constructive criticism that could help to improve and to refine the BCM as a policymaking tool. In a sensitivity analysis, individual parameters are modified to determine the impact of such modifications on the overall quantitative results produced by the model. Such analyses are useful both in testing the overall robustness of the model as well as the relative importance of individual assumptions and quantitative inputs. The use of sensitivity analyses is a well-established technique that is widely used in the economics profession. It is likely that the model developers themselves conducted such analyses in the course of creating the BCM.

As discussed in ETI's original report, however, certain components of the BCM are only accessible with a password that the Joint Sponsors have not yet divulged.² The fact that the Joint Sponsors decided to "lock" certain critical assumptions upon which the model relies is a serious flaw in the BCM and detracts from its purportedly "public" status and credibility. ETI was forced to work around this limitation in order to conduct certain sensitivity analyses with respect to the economic assumptions incorporated into the BCM dealing with the use of copper vs. fiber optic cable in feeder plant. This was an important part of ETI's analytical undertaking inasmuch as the "locked" assumptions appeared to drive a major component of the costs

1. December 1 Joint Submission at I-1 - I-2, footnotes omitted, emphasis added.

2. *The Cost of Universal Service*, at 29.

represented in the model's results.

Upon noting that ETI had overcome the password obstacle to complete its sensitivity analysis, US West sent belligerent correspondence accusing ETI of "modifying" the BCM, and in so doing of violating the terms and conditions of the Joint Sponsors' "license agreement" for use of the BCM.³ Appendix 2 includes a copy of the letter from US West to ETI and a copy of ETI's response to that letter. In fact, in conducting its sensitivity analyses, ETI in no way "modified" the BCM. Rather, all that ETI did was to substitute different assumptions for those that the Joint Sponsors desired to "hardwire" into the model, in order to address and respond to the Commission's request for a critical and constructive examination of the potential usefulness of the BCM in guiding universal service policy deliberations.⁴ As a result of that sensitivity analysis, ETI concluded that the fiber/copper "crossover point" assumed in the model was not economically based, and that the effect of the BCM's misspecified assumptions was to overstate, by a significant amount, the subsidy requirements for universal service. From the results of our sensitivity analyses and extrapolating to a nationwide basis, ETI estimates that the dollar impact of this misspecification is to overstate the universal service subsidy requirement by as much as \$200-million annually.⁵

ETI has of course not done what US West has accused us of doing,⁶ but US West's attempt to intimidate us into confining our examination of the BCM within the narrow limits that it would like to enforce should be a source of some concern for the Commission. The outcome of this proceeding will have a profound financial impact upon a broad range of telecommunications providers. In general, incumbent LECs such as US West will be net recipients of universal service funding, while new local service entrants and other telecommunications providers will be net contributors. It is clearly in US West's financial self-interest to portray as large as subsidy requirement as possible, and the particular selection of a 12,000 foot "crossover point" rather than the 18,000 to 21,000 foot distance that is the appropriate economic choice for basic analog voice telephone service (the defined "universal service" offering) is simply to exaggerate the funding requirement and potentially to impose unnecessary and burdensome costs on US West's competitors. It would be imprudent for the Commission to adopt a cost proxy model without evaluating this key assumption. The Commission should not tolerate efforts such as these to block an informed and rigorous analysis of the BCM.

3. Letter dated April 26, 1996, from Judson D. Cary, Attorney, Intellectual Property Law Group, US West, Inc. to Dr. Lee Selwyn, president of Economics and Technology, Inc.

4. NPRM at para. 31.

5. This comparison reflects the use of 27,000 feet for the crossover point to fiber with the BCM default value of 12,000 feet. It also reflects the forward looking cost factor and a \$20 price support.

6. ETI has not "distributed" nor does it intend to distribute any "versions of the BCM" that reflect the various sensitivity analyses that we have undertaken.

Capturing a Realistic Portrayal of the Costs of Universal Service

As is discussed in *The Cost of Universal Service*, the crossover point is directly affected by the assumptions regarding the cost and discounts for fiber optic electronic equipment. If the crossover point of 12,000 feet that the BCM assumes is correct, then clearly the BCM's assumptions about costs for subscriber loop equipment are grossly exaggerated.⁷ If, however, the BCM's assumptions about subscriber loop equipment are correct, then clearly the BCM uses a grossly uneconomic fiber/copper crossover point.⁸ Because of the significant effect that these engineering and cost assumptions have on the BCM results, it would simply be irresponsible to accept the BCM's values and methodology at face value. ETI, by conducting sensitivity analyses of these aspects of the BCM, has simply identified critical areas for further examination and improvement. Although ETI has not itself modified the BCM, we certainly do recommend that – before the BCM is adopted in policymaking decisions – modifications be made to the BCM to correct the weaknesses that ETI has exposed.

7. *The Cost of Universal Service*, at 112, 115.

8. *Id.*, at 110-117.